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ABSTRACT

This essay is written for the secondary school teacher who is organizing that first course hoping to suggest some of the answers to the question: where to begin. The author begins by very briefly describing the discipline in terms of its central concerns with some history and some prediction for tomorrow. Against this historical background, traditional texts, published since 1966, are listed that are designed to provide an introduction to the facts, methods, and validated principles. Dissatisfactions coupled with the changing conception of psychology, the growth of humanistic psychology, and student demand for relevance, led to changes in both the texts and the first course. Consequently, several specialized texts, also published since 1966, and the Program on the Teaching of Psychology in the Secondary School (ED 044 597) are referred to for additional aid in course preparation. Innovations in teaching methodology, such as programmed approaches and unit mastery, and trends are summarized. Because the time allotted to psychology may be less than a semester, 10 topics that might have appeal to the student are briefly described: the split brain, sensory psychophysiology, animal behavior, behavior modification, social learning and imitation, love, Piaget, sleep and dreaming, signal detection, and self control. The APA Clearinghouse on Precollege Psychology is cited as a resource, and a bibliography of references is appended. (Author/SBE)

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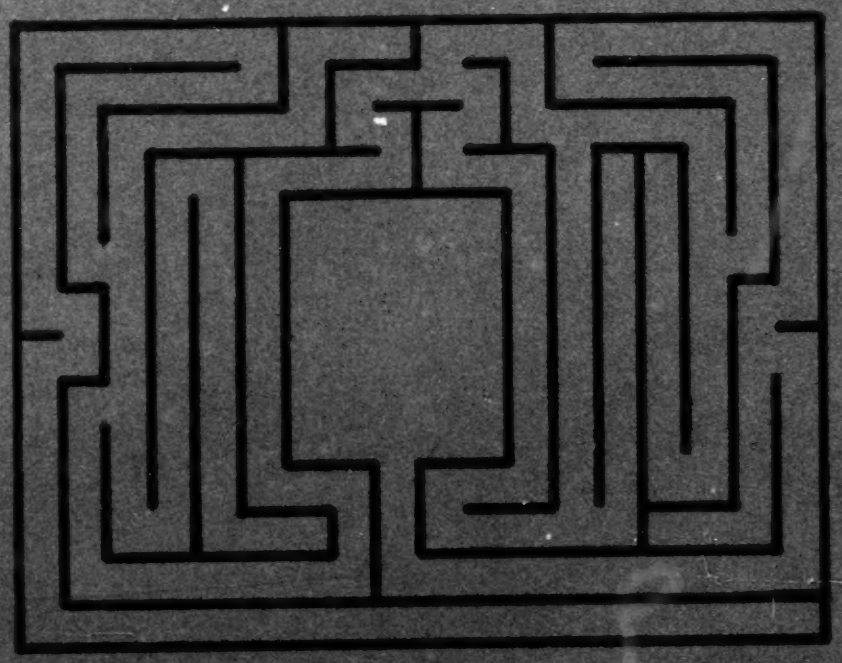

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PSYCHOLOGY: WHERE TO BEGIN

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PREFACE

Nick Helburn, of the ERIC Clearinghouse for Education and Social Science, asked me to write this paper for those teachers who write to his office saying "I have been asked to teach a course in psychology next year. Help!" He then suggested that the title might be "First Steps in Starting a Psychology Course." As my title and the paper both make very clear, I have begun at the very beginning. There must, I am sure, be sequels to this paper to provide the help that all teachers deserve, and if others are stimulated to go beyond what I have done, I shall have been satisfied indeed.

PSYCHOLOGY: WHERE TO BEGIN

The title, without further punctuation, may be read as promising an answer or posing a question. Written for the teacher who is organizing that first course, this essay starts with the question and hopes to suggest, as indirectly as possible, some of the answers.

Perhaps the first task is to describe the discipline, if only briefly. Of the number of ways in which psychology might be characterized--by definitions, by a random sample of the diverse problems that capture the interest of psychologists, by a listing of the topics included in the standard introductory text--the one chosen here is in terms of its central concerns, with some history and some prediction for tomorrow. For as Adam is reported to have said to Eve over that second cup of coffee, "We certainly are living in a period of rapid change."

Fortunately, a comprehensive history is not possible. But neither is it necessary, for in 1960 the first foreign president of the American Psychological Association said, "To a great extent, American psychology today <u>is</u> psychology" (Hebb, 1960, p. 735, italics his). In 1971 the statement is probably true to a somewhat lesser extent, but little injustice will be done by focusing primarily on American psychology.

Psychology was born in Germany as the study of consciousness. It was nurtured by physicists concerned with the nature of sensory input, by physiologists concerned with the basis of sensations, and by philosophers in search of the laws of association and was brought to America at an impressionable age. The society in which it found itself not only knew Darwin's theses, but was experiencing them in its westward expansion, and not only revered the practical, but was giving rise to its one major contribution to philosophy to date--Pragmatism. It is thus no suprise that the young psychology grew out of its introspective shell to become a discipline of action--brash, impatient to be on with the task, and somewhat intolerant of the past. What was needed was a subject matter that one could see and point at, something palpable, something vigorous, something, indeed, with consequences. <u>Behavior</u> fit the bill, but clearly it had to be behavior with a use, behavior that resulted in gain. Thus the problem of major interest became adaptation to the challenges of the environment or learning, but learning in the service of obtaining a goal.

Accompanying this radical but understandable change in subject matter were two <u>methodological</u> viewpoints that were even more significant. First, human behavior was to be un-

derstood in terms of input-output relationships, with man viewed much as a computer is viewed by a novice--somewhat mysterious, almost infinitely complex, but programmable, doing what it has been instructed to do. Secondly, with the events to be observed at last available to more than one observer (behavior in place of consciousness), the differences between psychology and the established sciences were erased, and the methodological rigor that had brought the latter knowledge and prestige could be adopted. And it was of more than little importance that the psychologist could look forward to being able to answer the questions forever posed to him by citing relevant and reliable data, even if the scope was not as broad as he wished and even if the data were probabilistic as they must perhaps always be. As the humorous lapel button has it, "Psychologists are people too."

Moreover, the psychologist's metaphysical and epistemological questions had always seemed (at least to him) more difficult than in the other sciences, and thus he looked for help from the philosophers of science. His definitions, they said, were to be based on the operation of measurement and his hypotheses had to be cast in an empirically testable form. Thus intelligence might be defined as "what intelligence tests test," mind might be defined as behavior, and questions about man's soul considered not properly psychological.

With his major problems thus resolved, the psychologist could get on with the business of investigating the role of physically measured environmental variables on behavior, as he did for roughly the first half of this century. By the 1940s, theory in psychology was learning theory--social psychology, personality, and even psychopathology were to be understood in learning terms, and Hull could contemplate an international psychology based upon his Principles of Behavior (1943).

But in science, today's too-easy certainty has a way of becoming tomorrow's doubt. Questions about intelligence and mind and even that old chestnut, consciousness, persisted. New means of measurement made previously taboo hypotheses testable. Non-learning psychologists quietly pursued other interests such as perception, emotion, and even thinking, or, heretically, other lodestars such as the Freudian unconscious; learning psychologists were discovering that they had to invoke unseen "mediating" processes to account for their data. Psychology was restless and undergoing change.

As is often the case, it is difficult to point to a particular instance at a particular time in a particular area of psychology when the change may be said to have begun. More important than the particular instance was the pervasiveness of this new revolution. Developmental psychologists found themselves reading Piaget; Chomsky proposed an alternate view of language; neuropsychologists were talking about motor af-

ferents and sensory efferents; learning theorists were thinking in terms of short, long, and even intermediate memory; and many people were reading a book entitled Cognitive Psychology (Neisser, 1966).

What was the essential nature of the change? The locus of the understanding of man was shifting from the input of the external environment to intraorganismic principles that modulate and attenuate both the input and output. Thus, in 1970 a leading neuropsychologist would write of consciousness as an emergent property of the central nervous system, with a function in behavior (Sperry, 1969), and leading researchers in learning would write an article on will (Kimble & Perlmuter, 1970).

To complete this brief history, the increasing importance of two other movements must be described. The first, based on Skinner's delineation of the variables central to operant conditioning, resulted in psychology's first systematic attempt to modify behavior in a variety of settings (e.g., school, hospital, group, and home) and with a variety of persons (e.g., husband, schizophrenic, and retarded child). The success of the techniques exceeded nearly every expectation; indeed, the success was great enough to make it mandatory that one discuss the moral question of "Modification to what end?" And while some psychologists would criticize the limited nature of the approach, the behavior modifier not only was having success, but having the satisfaction of doing something about society's problems.

The second movement, sometimes referred to as the third stream in contrast to behaviorism and Freudian psychology, was what came to be known as humanistic psychology. Humanism's thesis, if any one can be identified, is that much of what is essentially human about man--love, empathy, understanding, and the like--had not been studied by behaviorism because of behaviorism's restrictive assumptions. Humanism suggested that psychology had been precise but irrelevant; the countercharge was that humanism was relevant but imprecise. What is appearing as a consequence of this controversy is that more than ever psychology recognizes the importance of any hypothesis no matter what its source, but continues to demand, as it must, that all hypotheses be capable of confirmation, or--more importantly--disconfirmation.

Now, at last and briefly, how can one characterize the discipline of psychology in 1971? Its concerns range more widely than ever before; its conversations often exceed its ability to be certain of what it is talking about; it demands that hypotheses be carefully tested before it speaks with authority; it tends to be more comfortable in speaking about behavior than about consciousness, but it will talk about the latter; and it seems to be entered upon a new age that is neither over nor under thirty.

THE INTRODUCTORY COURSE

Against this historical background, the first course and its textbooks are readily understood. For much of this century both were most often designed to provide an introduction to the facts, methods, and whatever well-validated principles were available in a large number of areas from alpha waves to *z* scores, with the topic of learning most likely to be included and given the greatest coverage no matter what the author's primary interests. Illustrative texts are: Aiken, 1969; Cohen, 1966; Cox, 1970; Communications/Research/Machines, Inc., 1970; Deese, 1967; Dember & Jenkins, 1970; Edwards, 1968; Gilmer, 1970; Hilgard, Atkinson, & Atkinson, 1971; Hill, 1970; Kagan & Havemann, 1968; Kalish, 1970; Kendler, 1968; Kendler & Kendler, 1971; Krech, Crutchfield, & Livson, 1969a, 1969b; McKeachie & Doyle, 1971; Morgan & King, 1971; Moskowitz & Orgel, 1969; Munn, Fernald, & Fernald, 1969a, 1969b; Ruch, 1971; Sanford & Wrightsman, 1970; Sartain, North, Strange, & Chapman, 1967; Silverman, 1971; Stagner & Solley, 1970; Thompson & DeBold, 1971; Vinacke, 1968; Wright, Taylor, Davies, Sluckin, Lee, & Reason, 1970. Unable to escape their history, these texts tended to have chapter headings that originated in their consciousness days--sensation, perception, emotion, motivation, memory, and the like--but each was treated with rigor and the model was always output as a function of input. It was in this mold that two of the three texts written especially for high school were cast, Engle and Snellgrove (1969) and Branca (1968).

But the facts sometimes were sparse in number or seemed relatively unimportant, the interconnections between the variety of topics were often only dimly perceived, and the topics themselves were not of the personal adjustment variety in which the student is frequently interested. These dissatisfactions, coupled with the changing conception of psychology, the growth of humanistic psychology, and the general student demand for relevance, led to changes in both the texts and the first course.

More texts are now fractionated or specialized and sometimes both. The least fractionation was to make two books out of one, separating the areas of experimental and personality-social (Hutt, Isaacson, & Blum, 1966; Isaacson & Hutt, 1971), and the greatest was to produce and as separates publish long chapters on a number of topics, with single or multiple authorship (Cohen, 1970; Vernon, 1968). Specialization went in diverse directions: toward social psychology (relevant, it was hoped, to society's problems--Lindgren & Byrne, 1971; Wallace, 1971; Whitaker, 1970; Wrench, 1969); toward behavior analysis and modification (Ferster & Perrott, 1968; Mertens, Luker, & Boltuck, 1968; Notterman, 1970; Salzinger, 1969; Whaley & Malott, 1971), sometimes programmed as well (Holland & Skinner, 1961; Millenson, 1967); toward adjustment (relevant, it was hoped, to the individual's problems--Hershey & Lugo, 1970; Sawrey & Telford, 1971); and to-

ward a collection of selected topics reflecting the interests and expertise of the particular authors (Dallett, 1969; Epstein & Shontz, 1971; Galanter, 1966; Gallup, 1969; Gardiner, 1970; Heckel & Peacock, 1966; Wertheimer, Bjorkman, Lundberg, & Magnusson, 1971). It is in this last form that appears the remaining book written largely for the high school student (Sandberg, 1969). (Only those texts that are now in an edition other than the first or have been published in the last 5 years have been included. For reviews of college texts and readings books, see Contemporary Psychology--Bare, 1966; Brown, Collins, Gladstone, Jaynes, McHale, Miller, Ray, Sandvold, & Scott, 1971; Guthrie, 1968; McKenna, 1967; Mink & Johnson, 1968; Perloe, 1968; Rubinstein, 1970; Webb, 1966. For additional aid in preparing the first course, see Program on the Teaching of Psychology in the Secondary School, APA, 1970.)

Two books for the first course deserve special mention. The first is Hebb's short textbook (1966), somewhat specialized to be sure, but one that could serve in both readability and scholarship as a model for others. The second is the book by Pronko (1969) in which a large number of research studies are described in the author's own style, making reading them much more enjoyable than in the original.

Perhaps fewer changes have been made in the first course itself than in the texts. What innovations there are have been in the area of teaching methodology, such as programmed approaches and unit mastery as described by Keller (1968), rather than in content. But if the texts shape the course, perhaps further changes can be anticipated, with less attempt at an introduction to all of the areas within the discipline and more fractionation of the material that will match the diversity of student interests. Indeed, such changes are already in evidence at the college level. At one major institution, introductory sections of the course either are primarily the traditional survey or emphasize the personality-social dimension; at a second major institution, the first course, indeed the entire major, is centered around behavior analysis and modification; at a third, the student may take as his first course Introduction to Psychology: Learning, or Introduction to Psychology: Personality, or Introduction to Psychology: Developmental. What one suspects is common to these courses is the methodological rigor upon which psychologists insist.

Taken together, these trends in the textbooks and in the course give greater freedom to the teacher to choose the orientation of his introduction to psychology, and he is likely to be able to find a book that will suit him. Put in another way, there is no longer any demand that a particular course be the first one.

Given this diversity, another issue arises. Shall what is taught be knowledge of self or knowledge of others, prin-

ciples or applications to personal and social problems, precision or significance, hard or soft? Viewing the issue as knowledge of self or knowledge of others, one sees a problem unique to psychology: the subject matter is both objective and subjective, and the explanations for phenomena must be satisfying not only scientifically but experientially. Psychology has been trying to bridge these poles since its inception. The study of consciousness was the study of me with the hope of understanding you; the study of behavior is the study of you with the hope of understanding me. The study of consciousness floundered because you claimed you experienced things differently; the study of behavior is floundering because I do not think the principles I have discovered studying you are applicable to me. Together our egotism is disabling.

Viewed as the question of principles or applications or, to use an analogy, physiology or medicine, the issue generates other problems. Students and society at large are demanding cures for personal and social ills. But in psychology the existing knowledge most often permits only a treatment of the symptoms. How the dilemma is met, how the course is taught, may well depend upon how the teacher's doubt compares to his compassion (Bordin, 1966). If his doubt compels him to search for principles and thus hopefully to hasten the day when a cure is available, he goes in one direction; if his compassion compels him to do something about the problem now even though he is not yet sure of the principles, he goes in the other. In both directions lie dangers: the long-term problem solver may become so enamored of the search that he forgets the problems exist; the short-term problem solver may become so enthusiastic that he forgets he sometimes operates on the flimsiest evidence.

No prescription will be offered here and perhaps one should be actively avoided, for society needs both the principles, even if they are difficult to come by, and the solutions, even if they are temporary. One caution may be in order: psychology demands that hypotheses be confirmed, and some of man's most ingenious guesses in science have failed this test and have had to be discarded.

SELECTED TOPICS

Because the time allotted to psychology may be less than a semester, 10 topics that might have some appeal to the high school student will be briefly described. Each can stand alone, and together they reflect something of the range of topics in contemporary psychology. The list is clearly idiosyncratic to the author.

1. <u>The split brain</u>. To teach something about the neurophysiology of behavior in a limited amount of time requires that the pertinent neuroanatomy not be complex. Such is the

case with a fascinating series of studies done on both lower animals and man in which the corpus callosum, the large band of fibers that join the two cerebral hemispheres, is severed. In capsule summary, the lower animal behaves as if he has two brains instead of one, and a split-brain man's right hand does not know what the left hand is doing. The animal work offers an opportunity to explore the topics of learning and tests of retention (Sperry, Stamm, & Miner, 1956) and illustrates complications that arise when the conditions of learning are modified (Meikle & Sechzer, 1960; Sechzer, 1964). The human data are obtained largely by testing in a variety of ways (Gazzaniga, 1970; Gazzaniga, Bogen, & Sperry, 1962) and raise the issue of the role consciousness in behavior (Sperry, 1969).

2. Sensory psychophysiology. This topic, as with the previous and the next, might well be integrated with the course in biology. Either vision or audition might be chosen, for the neuroanatomy is only moderately complex. Here is reflected the history of psychology, for one problem of central concern is the physiological basis for the conscious experience of the various qualities of our sensations (red, salt, pain, and middle C, for example). Studying color vision one can follow the course of the stimulation from the retina (Brown & Wald, 1964) to the lateral geniculate body of the thalamus (DeValois, Abramov, & Jacobs, 1966; Wiesel & Hubel, 1966) to the cortex (Hubel & Wiesel, 1959), one can see the confirmation of two theories thought to be incompatible (DeValois, Abramov, & Jacobs, 1966; Marks, Dobelle, & MacNichol, 1964), and one can have the explanation for color blindness (Wald, 1968). A second problem is the mechanism by which the organism is able to make such fine discriminations between incoming stimuli in face of the fact that the receptors at the periphery are responsive to such a wide range of stimuli; the now classic work on the horseshoe crab provides the prototypical explanation for all the senses (Ratliff, 1962). For the teacher, a highly readable and excellent recent source for all the senses is Handbook of Physiology, Vol. 2 of Mountcastle's Medical Physiology (1968).

3. Animal behavior. What is intended by this relatively nonspecific title is instinctive, or natural, or better species-specific behavior, to include such diverse phenomena as bird navigation (Matthews, 1968), the detection of moths by bats and the evasion of bats by moths (Roeder, 1967), courting in the stickleback (Tinbergen, 1951), the parental feeding of ring doves (Lehrman, 1955), imprinting (Moltz, 1960), and territoriality (Falls, 1969). The complexity and elegance of the behaviors enhances one's appreciation of natural systems, and the New Yorker's profile of Lorenz (Alsop, 1969), Lorenz's King Solomon's Ring (1952), and Dethier's To Know a Fly (1962) are enjoyable reading indeed. An excellent reference for the teacher is Hinde (1970).

4. Behavior modification. If just one topic were to be

treated, behavior modification would almost have to be it. There are excellent introductions both short and long (Keller, 1969; Keller & Schoenfeld, 1950), there is a wide-ranging book that applies the findings to social institutions (Skinner, 1953), and there are applications to personal (Ullmann & Krasner, 1965) and to social problems (McGinnies & Ferster, 1970). One text uses the principles to teach the principles (Holland & Skinner, 1961), and there is even a utopian novel (Skinner, 1948). The phenomena are readily demonstrated in the class with a student or a pet and in the laboratory with nearly any organism, and their systematic analysis reveals an underlying lawfulness that never fails to be suprising. There is an opportunity to show how an ingenious psychologist and his wife used the techniques to produce animal acts (Breland & Breland, 1951), and one can discover with them that the natural behaviors of the kind described in the preceding section ultimately come to modify the ontogenetically new responses (Breland & Breland, 1961, 1966).

5. Social learning and imitation. The title can imply a wide range of phenomena--learning of language, attitude formation, and even psychotherapy--but with television as ubiquitous as it is, one needs as much information as possible on vicarious learning, that is, learning without reinforcement. The topic illustrates the early application of learning principles to social situations, including mob behavior (Miller & Dollard, 1941), and one can see an attempt at a modification of those principles (Bandura & Walters, 1963). Two recent books will serve as excellent sources for the teacher (McGinnies & Ferster, 1970; McLaughlin, 1971).

6. Love. For many year to come, when psychologists talk of love they will think of the name Harlow. It is the work of the Harlows that is intended here, and the best single source is the first four chapters of the recent text by Harlow, McGaugh, and Thompson (1971). (The publisher has recently indicated that the Harlow portion of the text will also be published separately.) The treatment is developmental and is easily related to such natural phenomena as imprinting in animals and attachment in humans (Bowlby, 1969). Harlow extends the topic to fear and anger in the fifth chapter and thus provides a link to another large area of research. We are reminded by the findings in this area that each of us plays an important role in the lives of others.

7. Piaget. While there may always be the danger of giving a single man too much credit for nearly anything, Piaget might be thought of as having done for developmental psychology what Freud did for the study of personality and as simultaneously playing a central role in moving psychology away from the input-output model. Nearly any introductory or developmental text will have a section on Piaget, but for a longer introduction there is Ginsberg and Opper (1969). For a wider introduction to developmental psychology, Mussen

has recently revised Carmichael's handbook (Mussen, 1970), and recent pieces in the Annual Review of Psychology are excellent (Elkind & Sameroff, 1970; Flavell & Hill, 1969; Hartup & Yonas, 1971). The students can take advantage of numerous opportunities to observe as younger siblings and friends display behaviors appropriate to various stages of development.

8. Sleep and dreaming. Several considerations seem to recommend this topic. It can be used to introduce the electroencephalogram, the device that not only made the systematic study of dreaming possible but is important to the study of the neurophysiology of alerting, attention, the orienting response, and even consciousness; it demonstrates that interest in a phenomenon is not sufficient to provide understanding in the absence of objective techniques to study it; it moves from physiology to personality; and it illustrates nicely the difference between confirmed hypotheses and interesting speculation. One excellent source is an article by Dement (1965), and for tentative answers to questions that occur to us all, try the book edited by Witkin and Lewis (1967).

9. Signal detection. Psychology has perhaps not yet discovered all of the remarkable potentialities of the ideas included in this area. Signal detection can be thought of as a technique and/or a model, applicable to a wide range of phenomena from sensory input to cognitive processes. To be most brief, it permits a measure of the discriminability between inputs as well as a measure of the criterion of judgment used by the discriminator, and one may examine both intra- and intersubject differences. For the novice, the elementary text by Kimble and Garmezy (1968) has a short but excellent introduction, and a longer treatment is available in Corso (1967). Suggestions on its use in various areas may be found in Kammann (1970), a workbook designed to accompany the Dember and Jenkins text (1970).

10. Self-control. If your students read Psychology Today or even Newsweek, they may have seen references to the control of various bodily processes such as the alpha rhythm of the electroencephalogram and speculations on its relation to certain Zen states. If one adds to this the fact that visceral and glandular responses (Miller, 1969) and neural activity (Black, 1971) may be modified by the learning process, the role of volition in behavior begins to become impressive indeed. A recent publication (Barber, DiCara, Kamiya, Miller, Shapiro, & Stoyva, 1971) brings previously scattered information together, and while this topic has some of the "gee whiz" of science in it and perhaps promises more than it can deliver, it nevertheless seems to have considerable interest for the contemporary student.

ADDITIONAL ASSISTANCE

No attempt will be made here to review books of readings and laboratory manuals, nor to list psychological journals and their coverage, films, collateral readings, suppliers of equipment, nor addresses of organizations that might supply materials appropriate for instruction. These form a part of the Program on the Teaching of Psychology in the Secondary School (APA, 1970), along with a discussion of some ways of increasing student involvement and some general suggestions on ways of organizing the first course. The publication is available from the American Psychological Association (1200 Seventeenth Street, N. W., Washington, D. C. 20036) for $2.00, and from Leasco Information Products, Inc. (4827 Rugby Avenue, Bethesda, Maryland 20014) for $.50 on microfiche and for $5.85 in hardcover (specify ED 044 597). Supplements to the report are planned by the APA Central Office to provide information on new materials as they become available. The high school teacher is strongly urged to supply his name and address to the Educational Affairs Office of the APA, for he can receive free of charge Periodically, the newsletter of the newly established Clearinghouse on Precollege Psychology. Also, for $1.00 the teacher may affiliate with APA's Division 2 and receive its newsletter, Teaching of Psychology, in which appear articles, letters, and comments that can be helpful. Write to Dr. Wilbert S. Ray, Secretary-Treasurer of Division 2, c/o Bethany College, Bethany, West Virginia 26032.

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